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Patent Application
Docket No. 34650-655PT

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re patent application of: Magnus Tillgren, Magnus Hollström, Patrik Olsson, Peter Danielsson, and Stefan Hellqvist

For: HYPERLINK APPLICATIONS FOR AN ELECTRONIC READING DEVICE

BOX PATENT APPLICATION
Assistant Commissioner
for Patents
Washington, D.C. 20231

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PATENT APPLICATION TRANSMITTAL LETTER

Transmitted herewith for filing, please find the following:

- ☒ Specification, claims and abstract of the above-referenced patent application (total of 61 pages)
- ☒ 8 sheet(s) of drawing(s) (___ formal/ ☒ informal).
- ☒ Combined Declaration and Power of Attorney (unexecuted).
- ___ An Assignment of the invention to: Telefonaktiebolaget LM Ericsson (publ)
- ___ A verified statement claiming small entity status under 37 CFR 1.9 and 1.27.
- ☒ Other (specify): Acknowledgment postcard.
- ___ This application is a:
 - ___ Continuation
 - ___ Divisional
 - ___ Continuation-In-Part

09/703479-103400

of prior copending parent application Serial No. _____ filed on _____
now pending.

Please amend the application to insert the following line in the beginning of the specification:

--This application is a Continuation of prior application Serial No. _____ filed on _____, now pending.--

In the event that a petition to extend time under 37 CFR 1.136 is necessary in the parent application to maintain copendency for this application, a petition for an extension of the necessary time to maintain copendency is hereby requested for the parent application and the Commissioner is hereby authorized to debit our Account Number 10-0447 for the necessary fees.

The filing fee has been calculated as shown below:

	NO. FILED	NO. EXTRA	RATE	FEE
BASIC FEE				\$710
TOTAL CLAIMS	33-20	13	\$18	234
INDEPENDENT CLAIMS	2-3	0	\$80	0
MULTIPLE DEPENDENT CLAIM(S) PRESENTED			\$260	
TOTAL FEES:				\$944
Deduct one-half of fee for Small Entity				-
ASSIGNMENT RECORDAL FEE			\$40	
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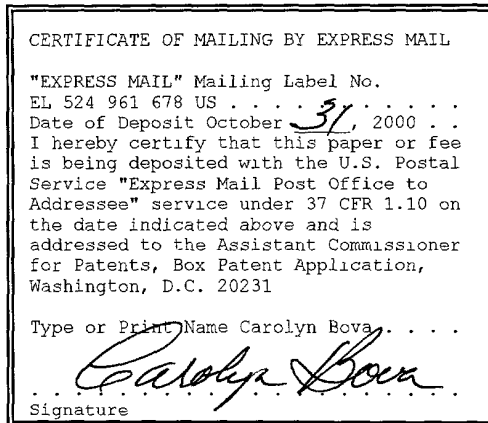
— The Commissioner is hereby authorized to charge payment of the following fees during the pendency of this application or credit any overpayment to Deposit Account No. 10-0447.

— Any patent application processing fees under 37 CFR 1.17 and under 37 CFR 1.20(d).

— The issue fee set in 37 CFR 1.18 at or before mailing of the Notice of Allowance, pursuant to 37 CFR 1.311(b).

Spencer Falt

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HYPERLINK APPLICATIONS FOR AN ELECTRONIC READING DEVICE

REFERENCE TO EARLIER FILED PROVISIONAL APPLICATIONS

5 This patent application claims the benefit of
priority from, and incorporates by reference the entire
disclosure of, co-pending U.S. Provisional Patent
Application Serial Nos. 60/182,742, filed on February 16,
2000, 60/190,343, filed on March 16, 2000, and 60/192,662,
filed on March 28, 2000.

CROSS REFERENCE TO RELATED APPLICATION

10 The present application for patent is related to and
hereby incorporates by reference the subject matter
disclosed in U.S. Patent Application Serial Nos.

_____ (Attorney Docket No.34650-566PT),
entitled "Specially Formatted Paper Based Applications of
a Mobile Phone"; _____ (Attorney Docket
No.34650-569PT), entitled "Method and System for Using an
5 Electronic Reading Device as a General Application Input
and Navigation Interface"; _____ (Attorney
Docket No.34650-578PT), entitled "Predefined Electronic
Pen Applications in Specially Formatted Paper";
_____ (Attorney Docket No. 34650-579PT),
10 entitled "A System and Method for Operating an Electronic
Reading Device User Interface"; _____
(Attorney Docket No. 34650-601PT), entitled "Method and
System for Using an Electronic Reading Device on Non-paper
Devices"; _____ (Attorney Docket No. 34650-
15 602PT), entitled "Multi-layer Reading Device";
_____ (Attorney Docket No. 34650-604PT),
entitled, "Method and System for Configuring and Unlocking
an Electronic Reading Device"; _____ (Attorney
Docket No. 34650-606PT), entitled "Printer Pen";
20 _____ (Attorney Docket No. 34650-607PT),
entitled "Method and System for Electronically Recording
Transactions and Performing Security Function";

_____ (Attorney Docket No. 34650-608PT),
entitled "Electronic Pen with Ink On/ink off Function and
Paper Touch Sensing"; _____ (Attorney Docket
No. 34650-654PT), entitled "Method and System for Handling
5 FIFO and Position Data in Connection with an Electronic
Reading Device"; _____ (Attorney Docket No.
34650-656PT), entitled "Measuring Applications for an
Electronic Reading Device"; _____ (Attorney
Docket No. 34650-657PT), entitled "Method and System for
10 Controlling an Electronic Utility Device Using an
Electronic Reading Device"; and _____ (Attorney
Docket No. 34650-658PT), entitled "Positioning
Applications for an Electronic Reading Device"; and
_____ (Attorney Docket No. 34650-673PT),
15 entitled "Method for Sharing Information Between
Electronic Reading Devices"; and in U.S. Provisional
Patent Application Serial Nos. _____
(Attorney Docket No. 34650-671PL), entitled "Electronic Pen
for E-Commerce Implementations"; and _____
20 (Attorney Docket No. 34650-672PL), entitled "Electronic Pen
Help Feedback and Information Retrieval"; all filed
concurrently herewith.

BACKGROUND OF THE INVENTION

Technical Field of the Invention

The present invention relates in general to the communications field, and in particular to an interaction
5 of an electronic reading device with an address pattern.

Description of Related Art

Numerous devices exist for accepting user input and controlling user interaction with desktop and portable computers, personal digital assistance (PDAs), mobile
10 phones, and other types of electronic devices. For example, a keyboard can be used to accept typed input and other types of commands, a mouse or a track-ball can be used to provide relative motion input as well as various types of point-and-click selections, a keypad can be used
15 to provide input of numerical data and functional commands, navigational keys can be used for scrolling lists or otherwise repositioning a cursor, and various types of touchpads or touchscreens can be used to provide absolute positional coordinate inputs. Each type of
20 mechanism for accepting input and for supporting user

interaction has benefits and disadvantages in terms of size, convenience, flexibility, responsiveness, and easy of use. Generally, the selection of a particular type of input mechanism is dependent upon the function of the application and the degree and type of interaction required.

With the ever expanding capabilities and availability of applications both on the Internet and the area of wireless technology, there continues to be a need to develop and provide new mechanisms for accepting input and interacting with users. In particular, some of the existing technologies suffer from drawbacks or limitations, such as size and flexibility, that make them impractical and/or inconvenient to use in some situations. By expanding the range of mechanisms for supporting user interaction, application developers and end-users can have greater flexibility in the selection of input devices. Preferably, any such new mechanisms will provide increased flexibility and will maximize user convenience. In addition, the development of new mechanisms for interacting with users can expand the realm of potential applications.

For example, while a keyboard typically provides a great deal of flexibility, particularly when it is used in connection with a mouse, a touchscreen, or other navigational device, its size makes it inconvenient in many cases, especially in the wireless context.

SUMMARY OF THE INVENTION

The present invention comprises a method and system for selecting a hyperlink and for providing a response to the selection. In particular, the hyperlink is printed, displayed, or otherwise included on a formatted surface. The area of the formatted surface on which the hyperlink is printed or displayed includes a unique address pattern that is formatted such that a position on the address pattern can be identified by detecting a part of the address pattern with an electronic reading device. Once the electronic reading device detects the address pattern, a corresponding Internet address is identified, and a message indicating the detection/selection is sent to a server at the identified Internet address. The server then performs an operation that corresponds to the selected hyperlink, such as sending information to a

mobile station, computer, or email address of the
electronic reading device user in response to the message.

Such a method and system can be used in connection
with hyperlinks that perform a wide variety of different
5 functions. For example, such a hyperlink system can be
used to obtain more information about a product through a
link on the web; connect to a web page using a link
contained in a book or newspaper; retrieve an electronic
version of an identification or business card; retrieve
10 accurate transportation timetable information; replace bar
codes or magnetic strips; retrieve additional information
about exhibits at a museum, zoo, or other attraction;
automatically activate special office messages;
automatically verify location for delivery persons; or
15 identify and authenticate tickets.

BRIEF DESCRIPTION OF THE DRAWINGS

For a more complete understanding of the present
invention, reference is made to the following detailed
description taken in conjunction with the accompanying
20 drawings wherein:

FIGURE 1 is a block diagram of a system in which an electronic pen can be used as an input device;

FIGURE 2 is a schematic diagram of a system for supporting use of the electronic pen described in connection with FIGURE 1;

FIGURE 3 is an illustration of the protocol stacks that can be used in the case of local communications between an electronic pen and an electronic pen client;

FIGURE 4 is an illustration of protocol stacks that can be used when an electronic pen and an electronic pen client communicate with one another via an Internet connection;

FIGURE 5 is an illustration of a protocol stack for communications between an electronic pen client and each of the supporting entities when the electronic pen client is not located within a server on the Internet;

FIGURE 6 is an illustration of protocol stacks that are used for communications between an electronic pen client and each of the supporting entities when the electronic pen client is located on the Internet;

FIGURE 7 is a block diagram of the electronic pen logic that handles positions, strokes, actions, and grid descriptions;

FIGURE 8 is a block diagram of a state machine for the electronic pen control block shown in FIGURE 7;

FIGURE 9 is a block diagram of a state machine for an electronic pen client;

FIGURES 10A-10C are a message flow and signaling diagram illustrating the operation of the electronic pen system shown and discussed in connection with FIGURE 2; and

FIGURE 11 is a schematic diagram of a hyperlink system in accordance with a preferred embodiment of the present invention.

DETAILED DESCRIPTION OF THE INVENTION

The present invention relates to a system in which an electronic reading device, such as an electronic pen, an electronic mouse, or a hand scanner, works in cooperation with an address pattern (e.g., a specially formatted paper) to provide for a detection of a location of the electronic reading device over the address pattern. For

instance, a pattern of dots can be defined such that, by examining a very small portion of the pattern, a precise location in the overall pattern can be determined. In fact, it is possible to define a pattern that has the size of 73,000,000,000,000 A4 pages, which is equivalent to half the size of the entire United States. Portions of the pattern can be placed on sheets of paper or other objects.

Then, using an electronic scanner pen that can detect the dots in the pattern, it is possible to detect the location of the pen with respect to the unique pattern. For example, when such a pen is used in connection with a specially formatted paper, the pen can detect its position (e.g., using a built in camera) by detecting a 3 mm by 3 mm portion of the pattern. By taking approximately 100 pictures per second, the pen is capable of determining its exact position to within 0.1 mm or less. This system can be used to provide user input, to facilitate user interaction, or to store handwritten notes or drawings. Moreover, by associating portions of the overall pattern with certain applications, such a system can be used to interact with wide variety of applications.

Referring now to FIGURE 1, there is illustrated an example of a system 2 in which an electronic pen 10 can be used as an input device. The electronic pen 10 includes an ink cartridge and is capable of writing in a typical fashion. The electronic pen 10, however, includes some type of sensor (e.g., a built-in camera) that is used for detecting an address pattern on a specially formatted piece of paper 12. In particular, the paper 12 is formatted with a small portion of a large address pattern such that when the electronic pen 10 is used to write on or otherwise make marks on the paper 12, the writings or markings can be electronically detected and stored.

As an example, the paper 12 might constitute a form that can be used for sending an email. Thus, the paper 12 might include a space for writing in the email address of an intended recipient, a space for writing a subject of the email, and a space for writing the body of the email. As the electronic pen 10 is used to fill in each of the spaces, the position and movement of the electronic pen 10 on the paper 12 can be determined by repeatedly detecting the current x, y coordinates of the pen 10 (e.g., at rate of 100 frames per second). The markings can then be

converted into ASCII text using an appropriate handwriting recognition program. Once the user completes the form, the email can be sent, for example, by checking a send box at a predetermined location on the paper 12.

5 Preferably, the coordinate information collected by the pen 10 is sent by a short range radio transmitter in the electronic pen 10 to a nearby mobile station 14 using a short range radio interface 16 such as a local wireless radio link (e.g., a local wireless radio link supported by
10 Ericsson's Bluetooth™ wireless communications technology). Alternatively, instead of using a mobile station 14, the coordinate information could also be sent to, for instance, a desktop or portable computer, a personal digital assistant (PDA), a television, or a Bluetooth
15 terminal. Moreover, instead of using a local wireless radio link, other types of local wireless links, such as inductive coupling and infrared light; other types of radio links, such as Global System for Mobile Communication (GSM); or wired transmission media, such as
20 a cable can also be used. The information can then be forwarded via an appropriate link, such as a cellular air interface 18, to a base station 20 or other network node.

Referring now to FIGURE 2, there is illustrated a schematic diagram of a system 2 for supporting use of the electronic pen 10 described in connection with FIGURE 1. Throughout the subsequent discussion, the system 2 is described primarily in connection with an electronic pen 10. It will be understood, however, that the invention and the underlying system 2 can instead use any type of electronic reading device, such as an electronic pen, an electronic mouse, or a hand scanner. As shown in FIGURE 2, the system 2 includes six different entities, including the electronic pen 10, electronic pen client 22, a control node 24, a name server 26, a base translator 28, and an application server 30. Although these various devices are described and depicted separately, it is also possible to combine two or more of the entities into the same device (e.g., the electronic pen 10 and electronic pen client 22 can be contained in the same device).

The electronic pen 10 is responsible for detecting positions on the address pattern, producing actions, and sending information to the electronic pen client 22. In addition to being able to leave pen markings, some electronic pens can also have the ability to produce other

types of output, such as sound, vibration, or flashing lights. The electronic pen 10 includes a memory for storing a current grid, which comprises information relating to an area of the address pattern that is near the most recently detected position of the electronic pen 10. When the electronic pen 10 is loaded with the current grid, it knows what actions to take based on the positions that are read from the address pattern. When the electronic pen 10 is first turned on or when it moves to an area outside of the current grid, the electronic pen 10 must first request a new grid description before it can continue processing information. In such a situation, the electronic pen 10 requests a new grid description from the electronic pen client 22.

The electronic pen client 22 can be located in a mobile station 14, in a PDA, in a desktop or portable computer, in the electronic pen 10 itself, in a server somewhere on the Internet, or in another device. The electronic pen client 22 serves as the center of communications in the overall system 2. In particular, the electronic pen client 22 receives new grid requests and action requests from the electronic pen 10 and

responds to these requests by contacting an appropriate entity within the overall system 2 to properly respond to the request from the electronic pen 10. Furthermore, when the electronic pen 10 is being used in connection with a particular application, the electronic pen client 22 can store the application and/or any corresponding data received from the electronic pen 10 to facilitate processing and use of the application.

The name server 26 is used for translating a detected position on the address pattern into a Uniform Resource Location (URL) associated with that position. Different portions of the address pattern are assigned to different applications. Neither the electronic pen 10 nor the electronic pen client 22, however, is aware of all of the different applications and the particular areas assigned to each application. Thus, when the electronic pen 10 detects a new or unknown position, it forwards the position information to the electronic pen client 22, which in turn sends the information to the name server 26. The name server 26 then identifies an application associated with the received position and retrieves a URL where a description of the particular application can be

found. The retrieved URL can then be used by the electronic pen client 22 to retrieve the application description.

As an alternative, the name server 26 can comprise a
5 global name server that keeps track of a location, in the form of URLs to local name servers, where more information can be found about different addresses in the pattern. Similarly, each local name server can use other local name servers to obtain the necessary information, i.e., to
10 convert a position into a URL where an application description can be found. At the lowest level, the local electronic pen client should know all the paper addresses that are within a specific application or applications.

There are some services that should be available in
15 the overall system 2 for which it is inconvenient or not feasible to support such services in the electronic pen 10 or the electronic pen client 22. In such a case, the base translator 28 can be used to support the services. For example, the base translator 28 might contain handwriting
20 recognition software for converting pen actions into text or for converting pen actions into a predefined set of symbols. When such services are needed, the electronic

pen client 22 can send a request to the base translator 28 along with the necessary data, and the base translator 28 can perform the requested service.

Another entity in the system 2 is a control node 24.

5 The control node 24 is used for responding to actions in a standardized way. For example, the control node 24 can be used to respond to certain generic functions, such as "cancel" or "submit" functions, in a consistent manner without regard to the particular application that is
10 currently active.

In addition, the control node 24 is used for creating streaming-like applications. For instance, some applications might require that the positions on the address pattern that are detected by the electronic pen 10
15 be immediately sent, upon detection, to the electronic pen client 22 for use by the application (i.e., the electronic pen 10 does not wait to transmit the position data until a complete stroke is detected or until a "send" field is touched). One example is an application that is used to
20 control an industrial robot in a warehouse. In such a case, the application description that is loaded onto the electronic pen server 22 can include instructions that all

positions be streamed to a control node 24. As a result, the control node 24 can receive the positions in real time and can control the robot without waiting for the form (i.e., the current grid) to be completed. Thus, the control node 24 can perform a real-time translation from detected positions to a responsive action, such as moving an object (e.g., a robot, a valve, etc.) or controlling a process.

The application server 30 is a regular web or wireless application protocol (WAP) server that supports an application associated with a particular area of the address pattern. The application server 30 stores an application description and provides the application description to the electronic pen client 22 upon request. In addition, the application server 30 receives input data from the electronic pen 10 via the electronic pen client 22. For example, the application description might define a number of data entry areas on a form. Thus when data is entered on the form by the electronic pen 10, the data is received by the electronic pen client 22, converted into text using handwriting recognition software, and forwarded to the application server 30, which stores the data or

otherwise processes the data in accordance with the
function of the application.

Referring now to FIGURES 3 through 6 there are
illustrated various examples of protocol stacks that can
be used for communicating between the entities shown in
FIGURE 2. Generally, however, such protocols apply
however, only if the two communicating entities are
implemented in different devices. If two or more entities
are combined into one device, a proprietary protocol can
be used to communicate between the entities. FIGURE 3
illustrates the protocol stacks that can be used in the
case of local communications (e.g., using Bluetooth)
between the electronic pen 10 and the electronic pen
client 22. If, on the other hand, the electronic pen 10
and the electronic pen client 22 communicate with one
another via an Internet connection, the protocol stacks
depicted in FIGURE 4 will be used. FIGURE 5 illustrates a
protocol stack for communicating between the electronic
pen client and each of the supporting entities, such as
the name server 26, the control node 24, the base
translator 28, and the application server 30, when the
electronic pen client 22 is not contained within a server

on the Internet (e.g., such as when the electronic pen client 22 is located in a mobile phone 14). Finally, FIGURE 6 depicts the protocol stacks that are used when the electronic pen client 22 is located on the Internet.

5 There are a number of procedures that can be used by the various entities in the system 2 to allow the system to operate properly. When the electronic pen 10 detects a position on the address pattern that is not within its currently loaded grid or when the electronic pen 10 has no
10 currently loaded grid, the electronic pen 10 initiates a new grid procedure. The new grid procedure involves sending a new grid request object to the electronic pen client 22. The new grid request object contains the newly detected position, a description of the actions that the
15 electronic pen 10 can natively support, and a description of the output signals that the electronic pen 10 supports. The reply to a new grid request object is a grid description, which can be provided by the electronic pen client 22 from its own internal memory or from the
20 information provided by an application server 30. Generally, the electronic pen client 22 extracts the grid description from an application description received from

the application server 30. The grid description should only contain action-field-types that the electronic pen 10 has indicated that it natively supports, which means that the electronic pen client 22 in some cases should convert the extracted grid description into a format that the electronic pen 10 can understand.

In some situations, it may be necessary for the electronic pen 10 to unload its current grid at the request of the electronic pen client 22. In such a case, the electronic pen client 22 sends an empty grid description to the electronic pen 10, thereby causing the electronic pen 10 to unload its current grid. This can occur, for example, when a particular application is complete or when a new grid description request received from the electronic pen 10 cannot be fulfilled, such as when the position received from the electronic pen 10 is not registered in the name server 26.

Another similar message is the empty grid description with a grid exception. When the electronic pen 10 requests a new grid description from the electronic pen client 22, the electronic pen client 22 uses the detected position specified in the request to ask the name server

26 for a URL where the application description can be
found. If no URL is returned, the electronic pen client
22 can send an empty grid description with a grid
exception to the electronic pen 10. The grid exception
5 comprises a rectangle or other shape indicating the area
around the detected position where no registered
applications can be found. Preferably, the indicated area
is as large as possible so that the electronic pen 10
and/or electronic pen client 22 know the extent of the
10 surrounding area that is unassigned and do not have to
repeatedly send requests to the name server 26. Thus, the
empty grid description with a grid exception causes the
electronic pen 10 to unload its current grid and also
informs the electronic pen 10 of an area surrounding the
15 detected position that can essentially be ignored because
its is not associated with any application.

The procedure that is used when the electronic pen 10
detects a new position is a find application description
location procedure. This procedure is used by the
20 electronic pen client 22 to translate a detected position
received from the electronic pen 10 into a URL where a
description of an application corresponding to that

position can be found. The procedure involves sending a request from the electronic pen client 22 to the name server 26 containing identification of the detected position. The name server 26 responds by sending a reply to the electronic pen client 22 containing a URL where an application description can be found or, if the detected position is not registered in the name server 26, containing an indication that no associated application is known to exist.

Once the electronic pen client 22 knows the URL where an application description can be found, the electronic pen client 22 can initiate a get application description procedure, which allows the electronic pen client 22 to retrieve the application description from the application server 30. In particular, the electronic pen client 22 sends an application description request containing a unique ID for the requesting electronic pen 10 and/or electronic pen client 22 to the application server 30 located at the URL address provided by the name server 26. In response, the application server 30 provides an application description object to the electronic pen client 22, which loads the application onto the electronic

pen client 22. The application description object is similar to an HTML form with some additions and modifications.

Furthermore, the application description object can be sent from the application server 30 to the electronic pen client 22 in response to a submitted form (i.e., a submission of one completed form might automatically result in a new form being loaded onto the electronic pen client 22). A related procedure is the application submit procedure, which is used by the electronic pen client 22 when the user of the electronic pen 10 selects a "submit" field in a form. In response to the selection of the "submit" field, the electronic pen client 22 will submit the form content in accordance with instructions received in the application description. Typically, the electronic pen client 22 will submit the form content, in the same way as a regular web browser, to a URL specified in a form tag of the application description.

When an action that can be handled by the electronic pen 10 itself is generated, an action procedure is initiated by the electronic pen 10 to send an action request object to the electronic pen client 22. If the

electronic pen client 22 cannot translate the action into a field value itself, the electronic pen client 22 further forwards the request to a base translator 28 for translating the action into a field value. In response to the action request object, an action reply object is sent from the electronic pen client 22 to the electronic pen 10. The action reply object contains output information that indicates to the electronic pen 10 which outputs signals to use. The output information, however, cannot be of type that the electronic pen 10 has previously indicated that it does not support. In some instances, the action reply object might contain a new grid description. In such a case the electronic pen 10 will unload its current grid description and load the new grid description. Similarly, if the action reply object contains an empty grid description, the electronic pen 10 will simply unload its current grid description.

The action request object is also sometimes used to specify actions that should be processed by the control node 24. In this instance, the electronic pen client 22 initiates a control procedure by forwarding the received action to the appropriate control node 24. As a result,

the control node 24 sends an action reply object to the electronic pen client 22.

The operation of the electronic pen 10 will now be discussed in greater detail. Each electronic pen 10 has a unique pen ID, which is sent to the application server 30 when an application description is requested. The electronic pen ID allows the application to identify the particular user that is using the application and to distinguish between multiple concurrent users of the same application, such as when different electronic pens 10 are being used in connection with separate sheets of paper that each contain the same portion of the address pattern.

Referring now to FIGURE 7, there is illustrated a block diagram of the electronic pen logic that handles positions, strokes, actions, and grid descriptions for the electronic pen 10. The electronic pen 10 includes a control block 32 for controlling the operation of the electronic pen 10. A grid description block 34 represents a memory location that stores a current grid description. At any given time, the electronic pen 10 can be in either of two modes. In a first mode, a grid description is

loaded, while in a second mode, the grid description block 34 is not loaded with a current grid description.

As the electronic pen 10 moves across an address pattern, the electronic pen 10 periodically (e.g., every 1/100 of a second) detects a position by detecting all of the dots within, for example, a 3mm by 3mm area. Each detected position is forwarded (as indicated at 36) to a position first in first out (FIFO) block 38, which acts as a buffer for temporarily storing the detected positions. The clocking of the position FIFO block 38 is controlled by the control block 32 (as indicated at 40).

The detected position is fed from the position FIFO block 38 (as indicated at 42) to an in grid detector 44. The in grid detector 44 retrieves data from the grid description block 34 (as indicated at 46) and determines whether the received position is within the loaded grid description. If not, the in grid detector 44 notifies the control block 32, which in turn initiates a request for a new grid. When the detected position is within the current grid, the position is then sent (as indicated at 50) from the in grid detector 44 to a stroke engine 52. The stroke engine 52 converts the received positions into

strokes, which are then sent (as indicated at 54) to an action engine 56. A complete stroke is created when the electronic pen 10 is lifted from the paper or when it moves outside of the grid field where the stroke began.

5 Finally, the action engine 56 converts the received stroke into an action that can be sent to the electronic pen client 22. By using grid action-field-types, the action engine knows which type of action to produce for a specific grid field.

10 Referring now to FIGURE 8, there is illustrated a block diagram of a state machine for the control block 32 shown in FIGURE 7. In this figure, events are indicated in capital letters, while tasks associated with the event are depicted in brackets. The process starts at step 60
15 with a start up event 62, which causes the position FIFO block 38 to begin receiving detected positions. Initially, the electronic pen 10 is in a no grid loaded state 64, which means that the electronic pen 10 does not have a grid loaded in the grid description block 34. As a
20 result, the control block 32 generates an outside grid indication 66, thereby causing the electronic pen 10 to send the request for a new grid description to the

electronic pen client 22 (i.e., in accordance with the new grid procedure) and to stop the FIFO buffer 38. At this point, the electronic pen 10 enters a waiting for grid state 68.

5 Once the new grid has been received (as indicated at 70), the control block 32 moves to a grid loaded state 72, at which time the new grid is loaded into the grid description block 34 and the position FIFO block 38 resumes operation. On the other hand, if no grid is
10 received (as indicated at 74), at least a portion of the positions stored in the FIFO buffer 38 are erased. Which part of the FIFO buffer to erase is determined by the grid exception area, if any, in the received empty grid description. Accordingly, all positions stored in the
15 FIFO buffer 38 that are within the grid exception area should be erased. If no grid exception is received, the stroke associated with the position is erased. In addition, the FIFO block 38 resumes operation and the control block 32 moves into the no grid loaded state 64.

20 When the control block 32 is in the grid loaded state 72, a current grid is loaded in the grid description block 34. While the control block 32 remains in this state 72,

the position FIFO block 38 continues to receive detected positions and passes them on to the stroke engine 52 and action engine 56. Actions produced by the action engine 56 are sent (as indicated at 58) to the electronic pen client 22 (i.e., in accordance with the action procedure described above).

At some point, an outside grid indication 74 may be received by the control block 32 from the in grid detector 44. The outside grid event 74 causes the FIFO block 38 to stop generating new positions. In addition, the electronic pen 10 enters a flushing stroke and action state 76 wherein the strokes that are currently in the stroke engine 52 and the actions that are currently in the action engine 56 are flushed to the electronic pen client 22. Once the stroke engine 52 and action engine 56 have been fully flushed (as indicated at 78), the electronic pen 10 sends a request for a new grid to the electronic pen client 22 and unloads the current grid. The control block 32 then moves back into the waiting for grid state 68.

As a general matter, the electronic pen 10 may be capable of supporting various different types of output,

including audio, such as warning tones; visual, such as a flashing light; tactile, such as vibration; and/or ink. In some cases, it might be desirable to allow the user of the electronic pen 10 to turn off the ink of the pen 10, such as when the electronic pen is being used on a portion of the address pattern that is public or shared or when the user wants to be able to reuse the current sheet of paper.

The electronic pen client 22 will now be described in greater detail. Generally, the electronic pen client 22 is analogous to a regular web browser. It is responsible for loading applications from application servers 30 and for handling input from the electronic pen 10. Preferably, the electronic pen client 22 is located in a separate device from the electronic pen 10 itself. This is because it is desirable to minimize the size and power supply requirements of the electronic pen 10, which will likely be adversely affected by the processing resources and memory necessary to support the functions of the electronic pen client 22.

Referring now to FIGURE 9, there is illustrated a block diagram of a state machine for the electronic pen client 22. Initially, the electronic pen client 22 is in

a no application loaded state 80. The electronic pen client 22 recognizes only one signal when in this state 80, namely a new grid request from the electronic pen 10. Such a request causes a load grid indication event 82.

5 The electronic pen client 22 responds by sending a request to the name server 26 to translate a position contained within the new grid request into a URL where the application description can be found (i.e., in accordance with the find application location procedure). Next, the
10 electronic pen client 22 enters a waiting for application description URL state 84. If no URL for the application description can be found (as indicated at 86), the electronic pen client 22 sends a new grid reply to the electronic pen 10, wherein the reply contains an empty
15 grid description with a grid exception. As a result, the electronic pen client 22 returns to the no application loaded state 80.

If a URL for the application description is received from the name server 26 (as indicated at 88), the
20 electronic pen client 22 sends a request to the application server 30 to retrieve the application description (i.e., in accordance with the get application

description procedure). Accordingly, the electronic pen client 22 enters a waiting for application description state 90.

If the electronic pen client 22 does not receive an application description from the application server 30 (as indicated at 92), a new grid reply is sent by the electronic pen client 22 to the electronic pen 10 wherein the reply contains an empty grid. Thus, the electronic pen client 22 returns to the no application loaded state 80. If, however, the electronic pen client 22 does receive an application description from the application server 30 (as indicated at 94), the electronic pen client 22 sends a new grid reply to the electronic pen 10 containing a new grid description, and the electronic pen client 22 loads the application in its memory. In addition, the electronic pen client 22 moves into an application loaded state 96.

In the application loaded state 96, five types of actions can be received by the electronic pen client 22 from the electronic pen 10. First, a received action can include a request that the electronic pen client 22 cannot handle itself, in which case the electronic pen client 22

will send the action to the base translator 28 (as indicated at 98). The electronic pen client 22 then moves into a waiting for response from the base translator state 100. Once a base translator response 102 is received by the electronic pen client 22, the electronic pen client 22 updates a current form or other data associated with the currently loaded application and sends an action reply to the electronic pen 10 with appropriate output information.

Another type of action that the electronic pen client 22 can receive from the electronic pen 10 is a request that should be forwarded to a control node 24. In such a case, the action is sent to a control URL specified in the application description (as indicated at 104), and the electronic pen client 22 enters a waiting for response from the control state 106. Once a response is received from the control (as indicated at 108), the electronic pen client 22 sends an action reply to the electronic pen 10 with appropriate output information.

A third type of action is a submit form request, in response to which the electronic pen client 22 will submit the current form to the application server 30 that is identified by the URL in the application description (as

indicated at 110). The electronic pen client 22 then enters a waiting for response from the application server state 112. If the application server 30 responds by sending an empty application description to the electronic pen client 22 (as indicated at 114), the current application is unloaded from the electronic pen client 22 and an action reply is sent to the electronic pen 10 with an empty grid. As a result, the electronic pen client 22 returns to the no application loaded state 80. On the other hand, if the application server 30 responds with a non-empty application description, the old application is unloaded from the electronic pen client 22, the new application description is parsed and loaded in the electronic pen client 22, an action reply is sent to the electronic pen 10 with a new grid description and with appropriate output information, and finally the electronic pen client 22 returns to the application loaded state 96.

A fourth type of action that can be received by the electronic pen client 22 from the electronic pen 10 is a request to load a new grid. This action occurs, for example, when a position outside of the current grid is detected by the electronic pen 10. When a new grid

request is received, the electronic pen client 22 sends a request to the name server 26 (as indicated at 116) and the electronic pen client 22 returns to the waiting for application description URL state 84.

5 Finally, a fifth type of action that can be received by the electronic pen client 22 is an action that the electronic pen client 22 can handle itself, in which case the electronic pen client 22 updates the current form and sends an action reply to the electronic pen 10 with
10 appropriate output information (as indicated at 118). The electronic pen client 22 then remains in the application loaded state 96. One type of action that the electronic pen client 22 might be able to handle itself is a local application. For example, the electronic pen client 22
15 might be capable of performing certain basic functions that are defined by a local application. Thus, when the electronic pen client 22 receives a new grid request, the position associated with the new grid request can be analyzed to determine if it corresponds to a local
20 application. If so, the electronic pen client 22 can load the application description from its local memory, send a new grid description to the electronic pen 10 without

having to communicate with the name server 26 or the application server 30.

Another action that might be handled locally by the electronic pen client 22 relates to the selection of fields within a form. When the electronic pen client 22 receives an action, the field that corresponds to that action receives focus. When this occurs, the electronic pen client 22 might display the field's value on its display or output the value by audio. In addition, the electronic pen client 22 might allow the user to edit the value of the field by means other than the electronic pen 10. Yet another type of action that might be handled by the electronic pen client 22 itself are actions that relate to a clipboard function. When a "copy" field is selected, the value of the field that had focus at the time the copy field was selected is transferred to the clipboard. Similarly, when a "paste" field is selected, the value stored in the clipboard is transferred to the field that had focus at the time the paste field was selected.

Referring now to FIGURES 10A through 10C, there is shown, by way of example, a message flow and signaling

diagram illustrating the operation of the electronic pen system 2 depicted in and discussed in connection with FIGURE 2. Initially, the electronic pen 10 detects a first position on the address pattern at step 120 (e.g., at a location on a sheet of paper designated for composing and sending emails). At this stage, it is assumed that the electronic pen 10 is in a no grid loaded state. Thus, in response to the detection of the first position, the electronic pen 10 sends a new grid request 122, which contains the detected position information, to the electronic pen client 22. As a result, the electronic pen client 22 sends an application location request 124 containing the detected position information to the name server 26, at step 126. The name server 26 translates the detected position into a URL where an application description that corresponds to the detected position can be found (e.g., a URL address for a server containing an email application), and returns an application location reply 128 containing the retrieved URL to the electronic pen client 22.

The electronic pen client 22 then sends an application description request 130, which contains the

unique pen ID for the electronic pen 10, to the application server 30. The application server 30 retrieves the application description at step 132 and sends an application description reply 134 containing the retrieved application description to the electronic pen client 22. The electronic pen client 22 then parses and stores the application description at step 136. This step further involves generating a current grid description from the application description and sending the grid description to the electronic pen 10 in a new grid reply 138. The electronic pen 10 stores the received grid description at step 140 and resumes processing of the detected positions. Using the detected positions and the information in the grid description (e.g., so that the electronic pen 10 knows which fields of the email form are being filled in), the electronic pen 10 generates strokes at step 142 and generates actions at step 144 using the stroke engine 52 and action engine 56 shown in FIGURE 7.

Each time an action is generated that cannot be handled by the electronic pen 10 itself, an action request 146 containing a description of the action is sent from the electronic pen 10 to the electronic pen client 22. At

this point, the electronic pen client 22 should determine what type of action has been received so that it can respond to the action in an appropriate manner. First, it is determined whether the action requires the attention of, or otherwise should be processed in accordance with, a local application at step 148. Very basic applications or frequently used applications (e.g., delete entered text), for example, might be stored locally to avoid having to contact another entity. In such a case, the electronic pen client 22 retrieves the local application at step 150 and sends an action reply 152, which can contain a new grid description or other appropriate information.

However, if it is determined at step 148 that the received action does not relate to a local application, the process continues at step 154 where it is determined whether the received action requires processing by an external translator (e.g., handwriting recognition). If so, an action request 156 containing a description of the action is sent by the electronic pen client 22 to the base translator 28. The base translator 28 processes the action at step 158 and sends an action reply 160 containing output information responsive to the received

action (e.g., text corresponding to written characters) to the electronic pen client 22, which can forward the output information to the electronic pen 10 in an action reply 162, if necessary.

5 If it is determined at step 154 that the received action does not require processing by an external translator, it is next determined whether the action relates to a control application at step 164. If so, an action request 166 containing a description of the action
10 is sent by the electronic pen client 22 to the control server 24. The control server 24 processes the received action at step 168 and, if a response is necessary, returns output information responsive to the received action in an action reply 170, which is forwarded from the
15 electronic pen client 22 to the electronic pen 10 in an action reply 172.

 Assuming that it is determined at step 164 that the received action does not relate to a control function, it is next determined whether the action comprises a request
20 to submit a form at step 174 (e.g., a selection of a "send" area on the email form). If so, an action request 176 containing the data entered onto the form is sent by

the electronic pen client 22 to the application server 30.
The application server 30 processes the form at step 178
and sends an action reply 180 containing a new application
description (or an empty application description) to the
5 electronic pen client 22. The electronic pen client 22
parses and stores the new application description at step
182 and generates a new grid description from the newly
received application description. The electronic pen
client 22 then sends an action reply 184 containing the
10 new grid description. Although not illustrated in the
figure, the electronic pen 10 will typically respond to
the receipt of a new grid description by unloading its
current grid description and loading the new grid
description into its memory.

15 At some point, it is assumed that the electronic pen
10 detects a position that is outside of the currently
loaded grid at step 186. In response to such an event,
the electronic pen 10 sends a new grid request 188
containing the newly detected position data to the
20 electronic pen client 22. In response, the electronic pen
client 22 again generates an application location request
190 containing the detected position data and sends the

request to the name server 26. The name server 26 determines whether a URL for an application description that corresponds to the newly detected position is available at step 192.

5 If so, the name server 26 sends an application location reply 194 containing a retrieved URL to the electronic pen client 22, which in turn sends an application description request 196 containing the unique pen ID for the electronic pen 10 to the application server 10 30 at the identified URL address, just as previously discussed in connection with messages 128 and 130. In this case, however, it is assumed that the application server 30 determines that the requested application description is unavailable at step 198. As a result, the 15 application server 30 sends an application description reply to the electronic pen client 22 containing an empty application description. In response to the receipt of an empty application description, the electronic pen client 22 unloads the current application at step 202 and sends a 20 new grid reply 204 containing an empty grid description to the electronic pen 10. The electronic pen 10 responds to

the receipt of the empty grid description by unloading the current grid description at step 206.

Another possibility is that the name server 26 determines at step 192 that a URL corresponding to the
5 detected position is not available. In this situation, the name server 26 sends an application location reply 208 to the electronic pen client 22. The reply 208 may simply be empty to indicate that a URL is not available.

Preferably, however, the reply 208 contains a grid
10 exception defining the largest area possible around the detected position for which there is no corresponding URL. In response to the reply 208, the electronic pen client 22 sends a new grid reply 210 containing an empty grid

description with a grid exception. Upon receiving the
15 reply 210, the electronic pen 10 unloads the current grid description at step 212. Furthermore, assuming that the electronic pen 10 receives and recognizes the grid exception information, the electronic pen 10 may

subsequently be able to determine that certain detected
20 positions on the address pattern are not associated with any application without having to send a request to the name server 26 or the application server 30.

In accordance with the present invention, an electronic reading device 10 can be used in connection with a predefined address pattern on a specially formatted surface 12 to activate a hyperlink. The hyperlink could function in a way similar to existing web page hyperlinks except that the hyperlink could be represented on any type of addressed surface, electronic or non-electronic, rather than just on a display screen. In other words, the hyperlink could be printed on an addressed area of a paper, wherein a particular Internet address is associated with the address pattern contained in the addressed area. Thus, a textual or graphical identification of the hyperlink (visible and understandable to a user) can be printed on an addressed area, which is preferably only slightly visible and is not easily decipherable by a user.

In accordance with the invention, the hyperlink can initiate an execution of a function in the electronic reading device 10 or any other device. The types of functions can include a download or upload, to or from the electronic reading device 10 or other device, of text, images, executable software, audio, video, status information, control data, or position information. For

example, by clicking on or touching the hyperlink with the electronic reading device, information could be retrieved from a remote server located at the Internet address and downloaded to the electronic reading device 10 or to

5 another electronic device, such as a mobile phone, that has an Internet browser (e.g., a web browser or a wireless application protocol (WAP) browser). Similarly, an object or text printed on the addressed surface 12 can be

10 associated with an electronic version of the object or text. Thus, touching the electronic reading device 10 to an image printed on the addressed surface 12 can retrieve a corresponding JPEG image, while touching a text area retrieves an audio copy of the text (e.g., for use in a newspaper for the visually handicapped). Alternatively,

15 by clicking on or touching the hyperlink, information about the user of the electronic reading device 10 could be sent to a server for storage or processing.

Referring now to FIGURE 11, there is illustrated a schematic diagram of a hyperlink system 220 in accordance with a preferred embodiment of the present invention.

20 When a user of the electronic reading device 10 touches or clicks on a hyperlink area 222 of a formatted surface 12

that includes a predefined address pattern, the electronic reading device 10 detects the hyperlink address pattern 222. Execution of a "click" can be done, for example, using optical or pressure sensitive detectors on the electronic reading device 10, using a click button on the electronic reading device 10, by simply touching the tip of the electronic pen 10 to a certain position or positions on the surface 12, by drawing a circle around a certain area on the surface 12 or by drawing a symbol on a certain area of the surface 12. The electronic reading device 10 then sends the detected address to a mobile phone 14 via a Bluetooth™ interface 16. The mobile phone 14, in this case, acts as an electronic reading device client 22 and, as described above, uses the detected address to obtain a URL for a server associated with the detected address. Alternatively, the detected address can also be sent to other electronic devices, such as a PC, PDA, or sent directly to a server. Moreover, instead of using a radio interface, other types of wireless technology, such as infrared light or inductive coupling, or wired technology, such as cable connections, can also be used.

Using a WAP browser or web browser, the mobile phone 14 then sends a message to a hyperlink server 228. The message indicates that the hyperlink 222 has been selected and preferably includes an electronic reading device identifier and/or mobile phone identifier so that the hyperlink server 228 can identify the user. In particular, the message is sent over a radio interface 18 to a base station 20, which forwards the message via a general packet radio service network 224 and an IP network 226 to the hyperlink server 228. After receiving the message, the hyperlink server 228 can send a response to the mobile phone 14 and/or the electronic reading device 10. The response can include any type of information, such as a web page, that is associated with the hyperlink. Alternatively, the hyperlink server 228 can send information in the form of an email to an email address associated with the user of the electronic reading device 10 and/or mobile phone 14. In another alternative, the hyperlink server 228 can simply store an indication that the user has selected the hyperlink or can perform some type of processing of data received in the message.

Such a hyperlink system 220 can be used for a wide variety of applications. In one embodiment of the invention, the hyperlink system 220 can be used to obtain more information about a product. The hyperlink address pattern 222 is included on a product, on product packaging, or in a product advertisement. When the hyperlink address pattern 222 is detected by the electronic reading device 10, additional product information is retrieved via the Internet and displayed on the mobile phone display 230.

In another embodiment of the invention, hyperlink address patterns 222 can be included in newspapers and books. Information could then be downloaded to an electronic device, in the form of text, still images, video, or audio, depending on the capabilities of the electronic device. For example, textual information could be sent to the mobile station 14 or a web-based version of a related article, or a link thereto, could be attached to an email delivered to the user's email address.

In another alternative embodiment, a hyperlink address pattern 222 is printed on part of a business card or identification card. By detecting the hyperlink

address pattern 222 with the electronic reading device 10, contact information (e.g., a vCard) or other personal information is downloaded to the mobile phone 14 or to a PDA.

5 Another embodiment of the invention facilitates retrieving timetable information. By including a hyperlink address pattern 222 at a bus stop, a timetable can be retrieved and downloaded to the mobile phone 14 when the electronic reading device 10 is scanned over or
10 clicked on the hyperlink address pattern 222. Furthermore, by using a hyperlink address pattern 222 that is unique for the particular bus stop, the hyperlink server 228 can identify the particular bus stop at which the user is located. Accurate information about when the
15 next bus should arrive, including any delays, can then be sent to the mobile station 14 in the form of text or audio. Accordingly, the user could receive a voice message stating, for example, that "the bus will arrive at this stop in ten minutes."

20 In another embodiment, the hyperlink address pattern can be used as an alternative to bar codes and magnetic strips. Thus, by scanning the hyperlink address pattern

222, the hyperlink server 228 can identify the entity or object with which the hyperlink address pattern 222 is associated.

In yet another embodiment, a museum, zoo, amusement
5 park, or other attraction can have a hyperlink address
pattern 222 placed in front of certain objects or areas
(e.g., on signs associated with individual exhibits). By
detecting the hyperlink address pattern 222 with the
electronic reading device 10, information or a link
10 thereto can be sent in an email to the user's email
address for reading at home.

In another embodiment, different hyperlink address
patterns 222 can be used to conveniently and quickly
select and set office messages. For example, by using the
15 electronic reading device 10 to select a state, such as
"Out of office," "Lunch," etc., the user's phone mail and
email settings could automatically be programmed with
appropriate messages. In addition, visitors could use
their own electronic reading device 10 to select a
20 hyperlink address pattern 222 outside of the user's office
to retrieve, to the visitor's mobile phone, a message
containing the state currently selected by the user.

In another embodiment of the invention, delivery persons can use an electronic reading device 10 on a hyperlink address pattern 222 at delivery locations to verify that they are at the correct location. In addition, the hyperlink server 228 could store a confirmation that the delivery person has actually been to a particular location along with the time of arrival.

In yet another alternative embodiment of the invention, a hyperlink address pattern 222 can be used instead of normal text or magnetic strips on tickets. The hyperlink address pattern 222 could then be scanned to authenticate the ticket. Alternatively, both text and the hyperlink address pattern 222 can be used so that the ticket can be both visually read by the user and electronically detected by an electronic reading device 10.

Although various preferred embodiments of the method and apparatus of the present invention have been illustrated in the accompanying Drawings and described in the foregoing Detailed Description, it is understood that the invention is not limited to the embodiments disclosed, but is capable of numerous rearrangements, modifications,

and substitutions without departing from the spirit of the invention as set forth and defined by the following claims. Furthermore, it shall be understood that the terms "comprises" and "comprising," when used in the
5 foregoing Detailed Description and the following claims, specifies the presence of stated features, elements, steps, or components but does not preclude the presence or addition of one or more other features, elements, steps, components, or groups thereof.

WHAT IS CLAIMED IS:

1 1. An electronic reading system, comprising:
2 a formatted surface having an area that includes
3 a specific part of an address pattern, wherein a unique
4 position on the address pattern can be identified from an
5 examination of a portion of the address pattern;
6 an electronic reading device including a sensor
7 for detecting at least a portion of the specific part of
8 the address pattern; and
9 a server associated with the specific part of
10 the address pattern for receiving a message from the
11 electronic reading device, said message sent in response
12 to said detection, and for performing a function in
13 response to said message.

1 2. The system of claim 1, wherein the address
2 pattern comprises a pattern of dots.

1 3. The system of claim 1, wherein said area of the
2 formatted surface further includes printed hyperlink
3 identification information.

1 4. The system of claim 3, wherein the printed
2 hyperlink identification information comprises a printed
3 image, said function performed by the server comprising
4 retrieving an electronic copy of the printed image.

1 5. The system of claim 3, wherein the printed
2 hyperlink identification information comprises text, said
3 function performed by the server comprising retrieving an
4 audio copy of the text.

1 6. The system of claim 1, wherein the function
2 comprises sending information associated with the specific
3 part of the address pattern to an electronic device
4 associated with a user of the electronic reading device.

1 7. The system of claim 1, wherein the function
2 comprises sending information associated with the specific
3 part of the address pattern to an email address associated
4 with a user of the electronic reading device.

1 8. The system of claim 1, wherein the electronic
2 reading device further includes a radio transmitter for
3 sending data relating to the detected specific part of the
4 address pattern to the server.

1 9. The system of claim 8, further comprising a
2 mobile station for receiving said data and for sending
3 said message to the server.

1 10. The system of claim 9, wherein the function
2 comprises sending information associated with the specific
3 part of the address pattern to the mobile station.

1 11. The system of claim 10, wherein the mobile
2 station includes an Internet browser, said information
3 comprising a web page.

1 12. The system of claim 1, wherein the electronic
2 reading device sends data relating to the detected
3 specific part of the address pattern to the server using
4 one of an infrared data transmission, inductive coupling,
5 and a cable connection.

1 13. The system of claim 1, wherein the specific part
2 of the address pattern relates to a product, the function
3 comprising sending product information.

1 14. The system of claim 1, wherein the formatted
2 surface comprises a part of a printed publication.

1 15. The system of claim 1, wherein the formatted
2 surface comprises a business card.

1 16. The system of claim 1, wherein the function
2 comprises retrieving a transportation timetable.

1 17. The system of claim 1, wherein the specific part
2 of the address pattern is associated with an object and
3 the function comprises retrieving an identification of the
4 object based on the specific part of the address pattern.

1 18. The system of claim 17, wherein the server
2 further sends an authentication of the object.

1 19. The system of claim 1, wherein the specific part
2 of the address pattern corresponds to an office message
3 state.

1 20. The system of claim 19, wherein the function
2 comprises activating one of a phone mail message
3 associated with the office message state and an email
4 response message associated with the office message state.

1 21. The system of claim 1, wherein the specific part
2 of the address pattern corresponds to a geographical
3 location.

1 22. The system of claim 21, wherein the function
2 comprises storing an indication that the specific part of
3 the address pattern has been detected by the electronic
4 reading device.

1 23. A method for selecting a hyperlink address,
2 comprising the steps of:
3 detecting a portion of an address pattern on a
4 formatted surface of an object using an electronic reading
5 device;
6 identifying an Internet address corresponding to
7 the detected portion of the address pattern;
8 sending a message to the identified Internet
9 address; and
10 performing an operation in a server for the
11 identified Internet address in response to the message.

1 24. The method of claim 23, wherein the operation
2 comprises sending data to a client address associated with
3 the electronic reading device.

1 25. The method of claim 24, wherein the client
2 address identifies one of a user email address and a user
3 electronic device.

1 26. The method of claim 25, wherein the data
2 comprises product information.

1 27. The method of claim 25, wherein the object
2 comprises a printed publication.

1 28. The method of claim 25, wherein the object
2 comprises a business card.

1 29. The method of claim 25, wherein the data
2 comprises transportation schedule information.

1 30. The method of claim 25, wherein the data
2 comprises an identification of the object.

1 31. The method of claim 25, wherein the data
2 comprises information regarding an attraction.

1 32. The method of claim 25, wherein the data
2 comprises location information relating to a geographical
3 location of the object.

1 33. The method of claim 23, wherein the operation
2 comprises authenticating the object.

ABSTRACT OF THE DISCLOSURE

A method and system for selecting a hyperlink that includes a unique address pattern uses an electronic reading device for detecting the address pattern. The
5 hyperlink can be included on a surface of any type of object and can be used, for example, to initiate a download of information to a mobile phone, personal computer, or other electronic device or to initiate a processing or storage operation. In particular, a message
10 indicating that the hyperlink has been selected is sent from the electronic reading device to a server, which initiates an appropriate response depending on the intended function of the hyperlink.

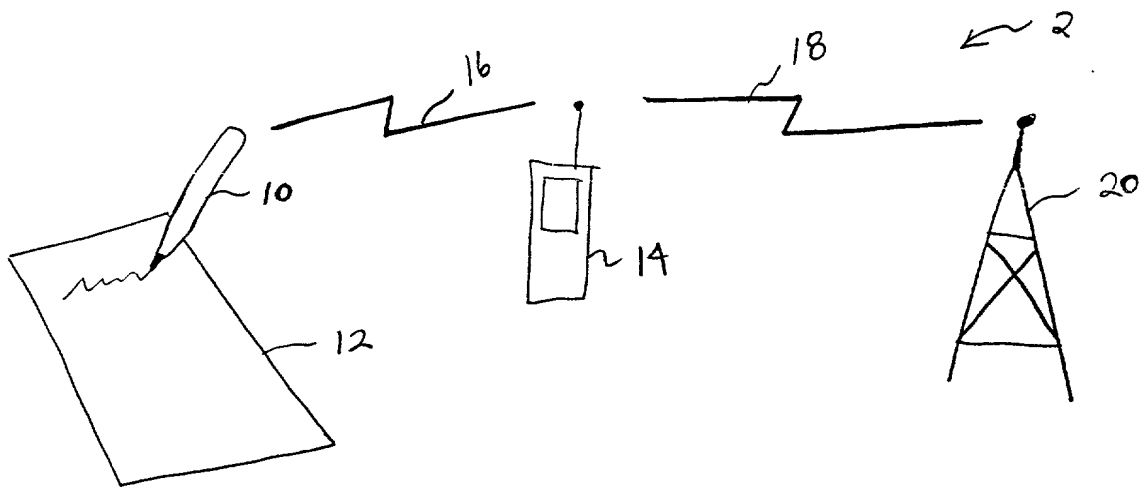


FIG. 1

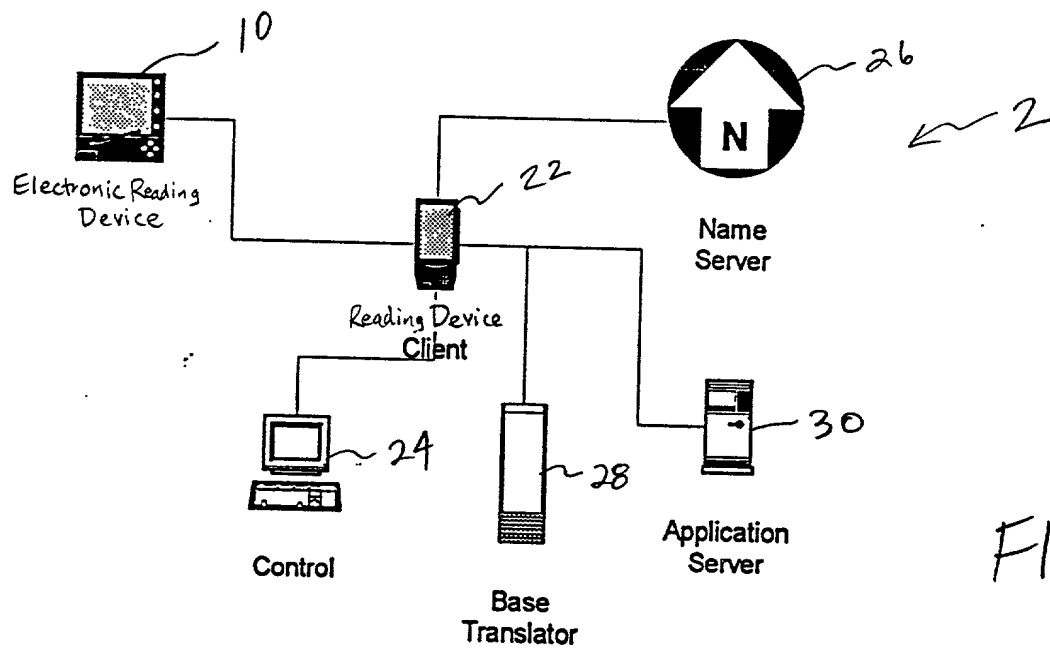


FIG. 2

000007-04760660

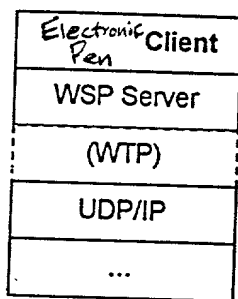
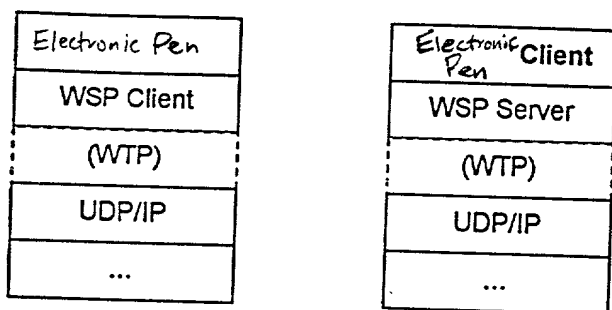


FIG. 3

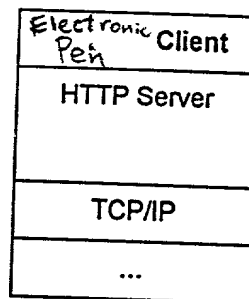
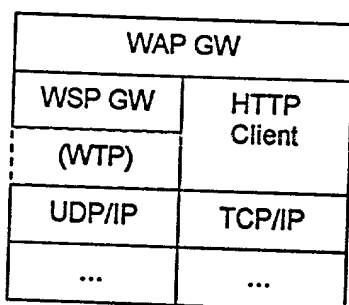
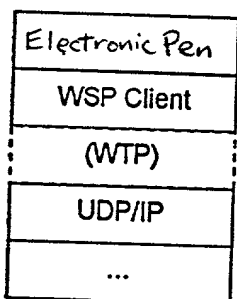


FIG. 4

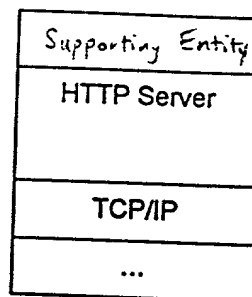
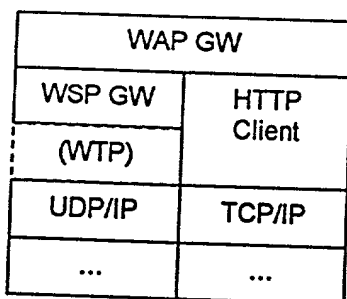
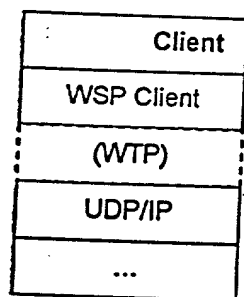


FIG. 5

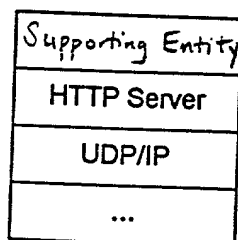
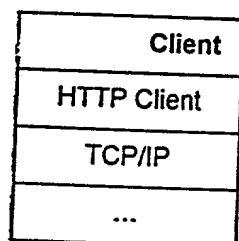


FIG. 6

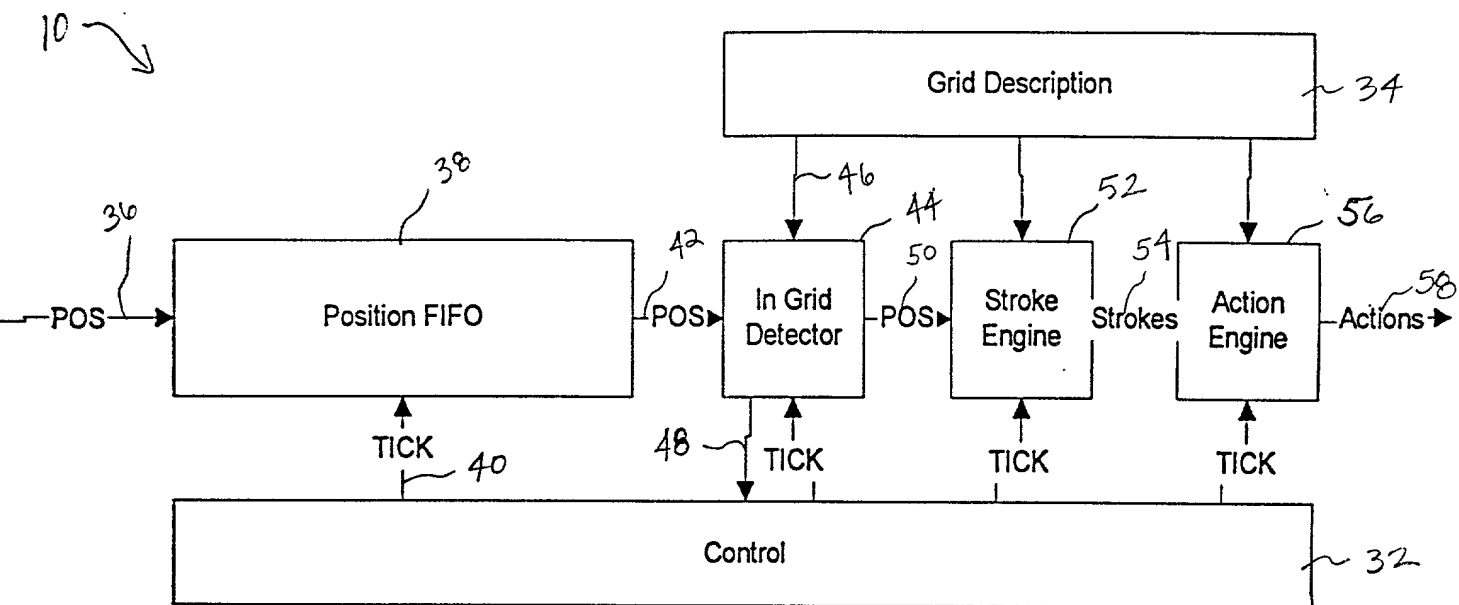


FIG. 7

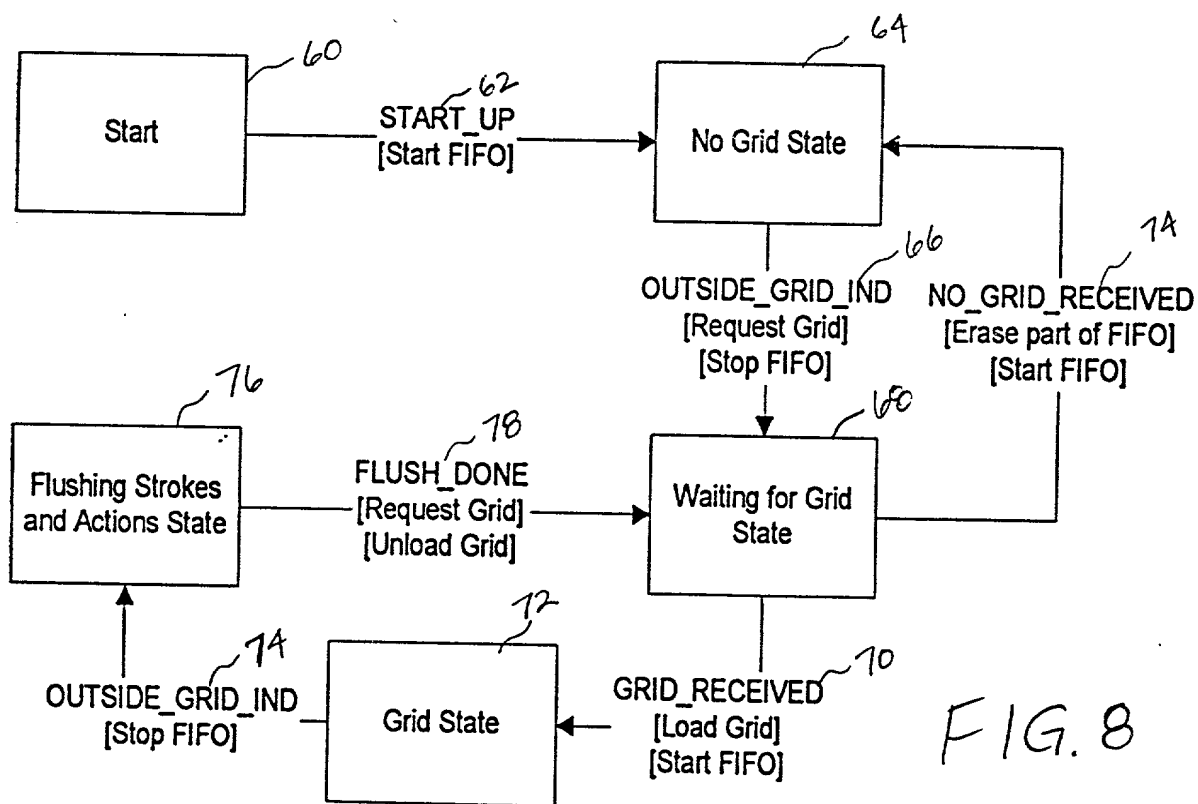


FIG. 8

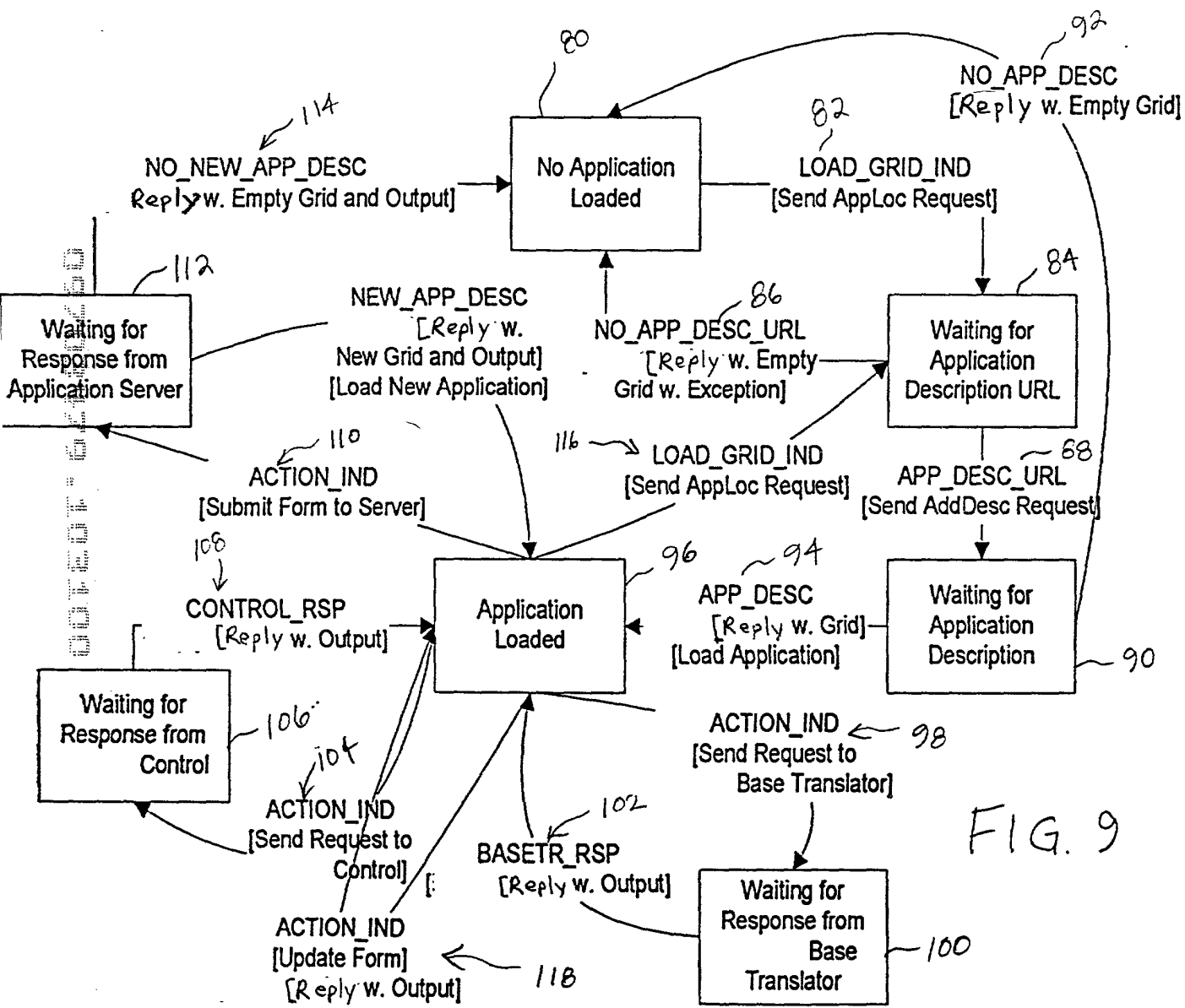
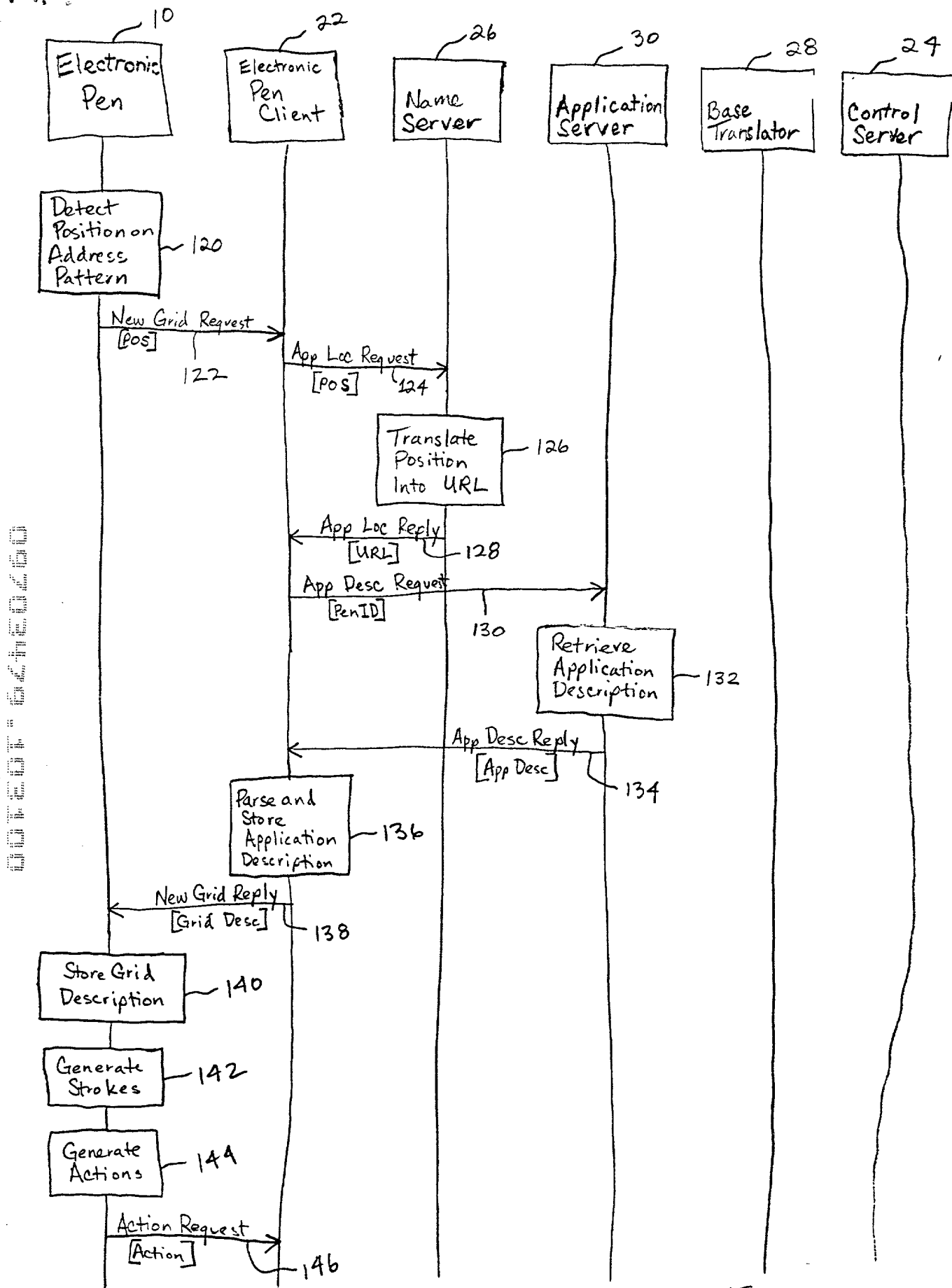


FIG. 9



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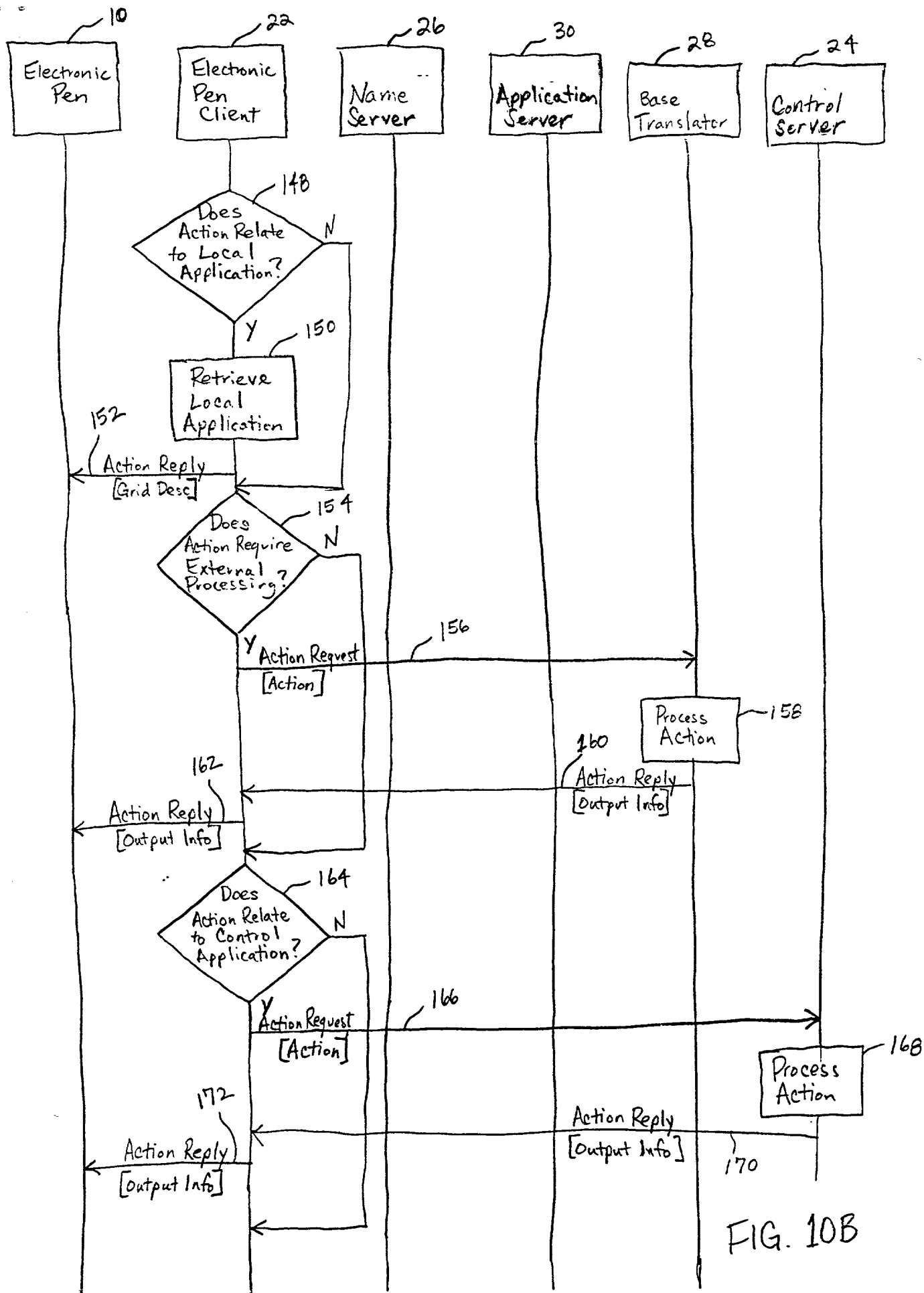


FIG. 10B

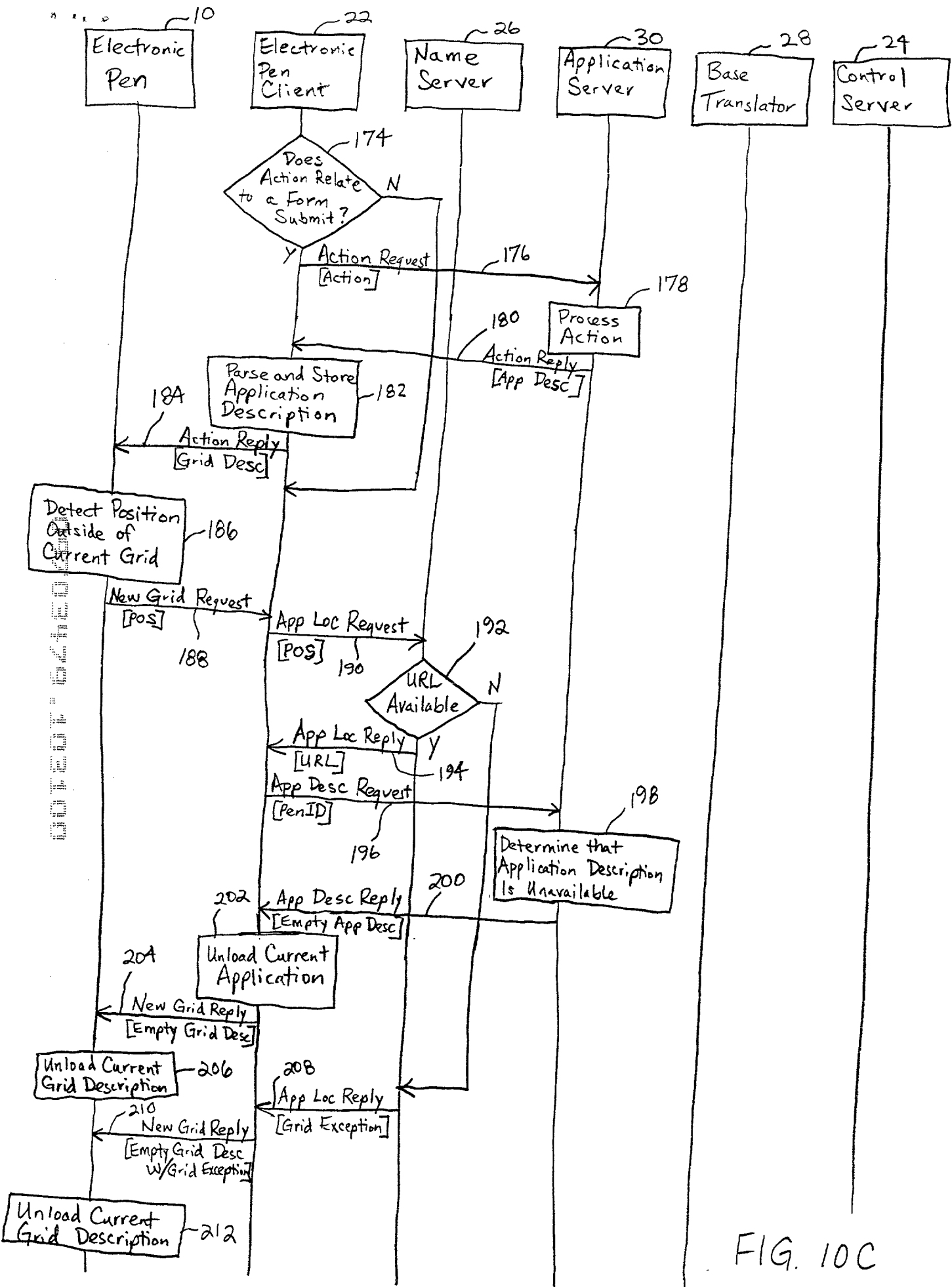


FIG. 10C

FIG. 11

Hyperion Server

11 G. 11

Hypertension
Cover

Parameter	Estimate	Standard Error	t-Statistic	p-Value
Intercept	1.234	0.056	21.856	0.000
Age	0.012	0.003	3.541	0.001
Gender	0.045	0.021	2.143	0.034
Education	0.023	0.008	2.875	0.004
Income	0.008	0.002	3.912	0.000
Health	0.015	0.004	3.541	0.001
Marital Status	0.032	0.015	2.133	0.035
Occupation	0.018	0.006	2.875	0.004
Religion	0.005	0.001	3.912	0.000
Political Affiliation	0.002	0.001	3.912	0.000
Urban/Rural	0.001	0.001	3.912	0.000
Time	0.000	0.000	3.912	0.000
Constant	1.234	0.056	21.856	0.000

**RULES 63 AND 67 (37 C.F.R. 1.63 and 1.67)
DECLARATION AND POWER OF ATTORNEY**

FOR UTILITY/DESIGN/CIP/PCT NATIONAL APPLICATIONS

As a below named inventor, I hereby declare that:

My residence, post office address and citizenship are as stated below next to my name; and

I believe that I am the original, first and sole inventor (if only one name is listed below) or an original, first and joint inventor (if plural names are listed below) of the subject matter which is claimed and for which a patent is sought on the invention entitled: **HYPERLINK APPLICATIONS FOR AN ELECTRONIC READING DEVICE**, the specification of which: (mark only one)

- ☐ (a) is attached hereto.
- ☐ (b) was filed on _ as Application Serial No. _ and was amended on ____ (if applicable)
- ☐ (c) was filed as PCT International Application No. PCT/____ on ____ and was amended on ____ (if applicable).
- ☐ (d) was filed on _ as Application Serial No. _ and was issued a Notice of Allowance on ____.
- ☒ (e) was filed on October 31, 2000 and bearing attorney docket number 34650-655PT.

I hereby state that I have reviewed and understand the contents of the above identified specification, including the claims as amended by any amendment referred to above or as allowed as indicated above.

I acknowledge the duty to disclose all information known to me to be material to the patentability of this application as defined in 37 CFR § 1.56. If this is a continuation-in-part (CIP) application, insofar as the subject matter of each of the claims of this application is not disclosed in the prior United States application in the manner provided by the first paragraph of 35 U.S.C. § 112, I acknowledge the duty to disclose to the Office all information known to me to be material to patentability of the application as defined in 37 CFR § 1.56 which became available between the filing date of the prior application and the national or PCT international filing date of this application.

I hereby claim foreign priority benefits under 35 U.S.C. § 119/365 of any foreign application(s) for patent or inventor's certificate listed below and have also identified below any foreign application for patent or inventor's certificate filed by me or my assignee disclosing the subject matter claimed in this application and having a filing date (1) before that of the application

on which my priority is claimed or, (2) if no priority is claimed, before the filing date of this application:

PRIOR FOREIGN PATENTS

<u>Number</u>	<u>Country</u>	<u>Month/Day/Year</u> <u>Filed</u>	<u>Date first</u> <u>laid-open or</u> <u>Published</u>	<u>Date</u> <u>patented or</u> <u>Granted</u>	<u>Priority Claimed</u> <u>Yes</u> <u>No</u>
NONE					

I hereby claim the benefit under 35 U.S.C. § 120/365 of any United States application(s) listed below and PCT international applications listed above or below:

I hereby claim the benefit under 35 U.S.C. § 119(e) of any United States provisional application(s) listed below:

PROVISIONAL APPLICATIONS

<u>Application No. (series code/serial no.)</u>	<u>Month/Day/Year Filed</u>
60/182,742	February 16, 2000
60/190,343	March 16, 2000
60/192,662	March 28, 2000

PRIOR U.S. OR PCT APPLICATIONS

<u>Application No. (series code/serial no.)</u>	<u>Month/Day/Year Filed</u>	<u>Status(pending, abandoned, patented)</u>
NONE		

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substitution and revocation, to prosecute this application, provisionals thereof, continuations, continuations-in-part, divisionals, appeals, reissues, substitutions, and extensions thereof and to transact all business in the United States Patent and Trademark Office connected therewith, to appoint any individuals under an associate power of attorney and to file and prosecute any international patent application filed thereon before any international authorities, and I hereby authorize them to act and rely on instructions from and communicate directly with the person/assignee/attorney/firm/organization who/which first sent this case to them and by whom/which I hereby declare that I have consented after full disclosure to be represented unless/until I instruct them in writing to the contrary.

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I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

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